Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (CURRENTLY AMENDED) A method for increasing the effective communications channel bandwidth beyond that of the constrained physical bandwidth, and thereby ~~permitting an increase in~~ increasing the spectral efficiency and the data rate of the channel, and/or the power efficiency of the channel, by orthogonal signal spectrum overlay (OSSO) comprising: decomposing the time-bandwidth product (TBP) of a given symbol in a data stream transmitted through a given physical bandwidth, non-linearly expanding said TBP in terms of an orthogonally overlaid signal basis set constituting the eigensignals of said symbol.

2. (ORIGINAL) The method defined in claim 1 wherein the number of orthogonal signals obtained in a specific symbol is set by the size of the TBP of the symbol.

3. (ORIGINAL) The method defined in claim 1 wherein the orthogonally overlaid signal basis set are Weber-Hermite (WH) functions and the number of WH signals obtained in a specific symbol is set by the size of the TBP of the symbol.

4. (ORIGINAL) The method defined in claim 1 wherein the complete data stream is multiplexed to produce a plurality of data channels, each of which is encoded on orthogonal signals.

5. (ORIGINAL) The method defined in claim 2 wherein OSSO symbols and associated orthogonal signals are transmitted in quadrature format (I and Q) and is the result of the addition of orthogonal signals, each of which constitutes a separate but

overlaid communication channel, all occupying the same physical bandwidth.

6. (CURRENTLY AMENDED) A system for increasing the effective communications channel bandwidth beyond that of the constrained physical
bandwidth, and thereby ~~permitting an increase in~~ increasing the spectral efficiency and the data rate of the channel, by orthogonal signal spectrum overlay (OSSO) comprising: means for decomposing the time-bandwidth product (TBP) of a given symbol in a data stream transmitted through a given bandwidth, non-linearly expanding said TBP in terms of an orthogonally overlaid signal basis set that constitute the eigensignals of said symbol within a set channel.

7. (ORIGINAL) The system defined in claim 6 wherein the orthogonally overlaid signal basis set are Weber-Hermite (WH) functions and the number of WH signals obtained in a specific symbol is set by the size of the TBP of the symbol.

8. (ORIGINAL) The system defined in claim 6 including means to multiplex in the complete data stream to produce a plurality of data channels, each of which is encoded on WH signals.

9. (ORIGINAL) The system defined in claim 8 wherein OSSO symbols and associated WH signals are transmitted in quadrature format (I and Q) and is the result of the addition of WH signals, each of which constitutes a separate overlaid communication channel, all occupying the same physical bandwidth.

10. (CURRENTLY AMENDED) A transmitter for expanding the time bandwidth product TBP in terms of an overlaid basis set of signals constituting the eigensignals of an OSSO symbol, comprising means for converting a data word into subwords assigned in parallel to

individual orthogonal signals, means for encoding the data for each subword by quadrature amplitude modulation (QAM) of each separate orthogonal signal such that the QAM-modulated signals are then overlaid in ~~I and Q to form a~~ quadrature format (I and Q) to form a non-linear symbol modulation and the symbol modulation in I and Q is used as the envelope to a 10 chosen carrier forming the OSSO symbol; [[D-A]] digital-to-analog (D-A) means for conversion of said OSSO symbols and means for transmitting said OSSO symbol on a carrier to a point of utilization.

11. (CURRENTLY AMENDED) A point of utilization receiver wherein an OSSO symbol is received from the transmitter defined in claim 10 and the carrier removed, comprising: [[A-D]] analog-to-digital (A-D) converter for the symbol envelope in I and Q forms, template means for correlating or matching the orthogonal signals against the symbol envelope in both I and Q, permitting the recovery of the QAM constellations associated with each orthogonal signal so that the data for each subword is then recovered from each of the constellations and the symbol data word is recovered by parallel to serial conversion of the signal subwords.